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IN THIS ISSUE

PAGE

Securing Continuous Management Support—D. Y. Cole 1
The Systems and Procedures Function—W. C. Marks 3
Some Standards in the Office—L. B. Helms, Jr. 6

NATIONAL SYSTEMS MEETING

That Methods Man—J. G. Hendrick 9
Charting Techniques—J. F. Foley 11
Go To The Top Man—Gerald Doyle 19
Accounts Payable Systems—B. H. Semler 23
A Well Balanced Work Plan Yields Standard Work Performance—A. R. Mosler 25

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SECURING CONTINUOUS MANAGEMENT SUPPORT

A Balanced Methods Staff, Good Methods Program and Progress Reports Furnish the Keys

By D. Y. COLE

YOU cannot expect management support, on a continuous basis, or otherwise, unless your systems plan and program is well conceived, complete and proven. You might be able to sell your systems program originally, but if it lacks completeness or if it is weak in any operating phase, members of top management will soon begin to wonder if they were sold a "bill of goods."

Mr. Ray Crean, Vice President of The Baldwin Locomotive Works of Philadelphia, in a recent address, described the function as systems and procedures men as the mortar, or cohesive, binding the bricks, or various segments of a business organization such as Sales, Engineering, Production, Finance, etc.

This was of special interest to me, as coincidentally it was an illustration made by Col. L. F. Harman, Assistant to the Chairman of the Board and General Manager of Northrop, only a day or two before.

Thus, an executive from the East Coast and one on the West Coast have independently agreed on the need and value of our work in the same terms.

If you want to lay the first foundation stone of continuous management support, be sure that your program is right at the start. Set down in writing exactly what you propose to do. Will you operate a forms control program? Will you create, coordinate, and issue procedures? How do you propose to issue statements of policy? Will you survey systems, propose better ones? If your proposal is accepted, will you do the installing? What sort of staff will you need? State your program, make it concrete, specific, and complete as possible at the start.

There are dozens of questions that you should be able to answer before you even try to make your approach to management. Now if you are an old-timer at this, you can draw upon your experience for many of the answers. But even so, it will pay you to check with business associates and ask for their counsel and advice.

If you are comparatively new at systems work, take it slow and easy. Find out what has been done and what has been written on the subject. And if you are new, be careful about biting off more than you can chew. You may indicate that other phases will be taken into the picture later, but right now select one phase of the work and promise to do a job on it alone.

Start with Forms Control

If I were to offer advice on what phase of the work would be a good field to use as a start toward an eventual complete systems program, I'd say select "forms control." Now we haven't time to go into the details of this program, but the Bureau of the Budget has published an excellent book on the subject. You may secure a copy by writing to the Superintendent of Documents, Washington 25, D.C.

After your program has been accepted, immediately issue a policy bulletin and a procedure outlining Management's policy in regard to your activity, and detailing exactly how other segments of the organization tie in. Prepare and issue an organization chart and a functional outline, emphasizing the lateral relationships. Have these papers signed by management, and then all concerned know your program has their blessing. Signatures of the general manager, vice president, or other members of top management make the program official, and a definite part of the organization.

If you have properly outlined your program, you will know exactly what you are going to do, how many and what type of people you will need. Thus, management's approval of the program should provide the proper budget, office space, 'phone service, files, and office furniture and equipment.

Mr. COLE, Systems Administrator of Northrop Aircraft Inc., is a member of the Los Angeles Chapter of SPAA.

Include Experienced Personnel in Methods Staff

If you want continuous management support, don't be afraid to surround yourself with talented people. Remember, "You can harness power, but you can't inject it." If your staff is weak, your program will be weak. If your staff is strong, your program will be positive and resultful. Don't engage all untrained personnel. Balance up the organization with one or two "old heads" if you can get them, and let the newer ones do the leg-work while they are learning the ropes.

Rudyard Kipling is credited with the following:
"I keep six honest serving men,
(They taught me all I know),
Their names are WHAT and WHY and WHEN,
and HOW and WHERE and WHO."
We, of Systems Administration at Northrop, could be likened to these six. We are the serving men to Management; the mortar between the bricks.

Give your proven people all the latitude you can without losing control. Rely on their technical skill, but if they are wrong once in a while, continue to back them. Give them full credit for what they create or accomplish; be proud of their achievements, and they will be proud of you.

If you are well organized, you will have "case history" files on bulletins, forms, procedures, organization charts and functional outlines. You will have them cross-referenced so that a telephone question will not find you fumbling for an answer. In the "case history" folder, you will have signatures obtained during the coordination of the form or procedure. Keep correspondence and notes which are pertinent. The forms folder should contain a complete history of the form, including its functional purpose, revisions, the original form request, and copy of the internal or external print orders.

Have a method of controlling procedures, forms, or policies while in the process of coordination. This method should provide follow-up reminder features. (Pending Control Cards).

One of the principal duties of a Systems Administrator is to keep the company-wide aspects in constant view. Review all matter searching for indirect as well as direct impacts on all divisions and departments, such as Legal, Industrial Relations, Public Relations, etc.

From what I have said so far, you have probably decided that management is more likely to give you continuous support if your original plan and proposal is sound. That is exactly what I mean. You can make all the management contacts you need later, but if your program continually shows up as weak or inadequate, management is going to feel that, "What you do speaks so loudly that we cannot hear what you say."

If you have started right, you have a definite goal. If you waver from that goal, all concerned will begin to lose confidence in you. Certainly, you'll have to yield part of the time, but whenever you can, yield on the points that are minor, but try to hold to the goal. If a damaging compromise must be made, then it is your duty to point out to management the effect on their eventual goal for your program. Notice, I said "their." When they accepted your program, your goal became their goal! If they insist on the compromise, they do so knowing clearly the effect on the systems program. After all, management sometimes has to make decisions detrimental to one phase of the organization's work but that will result in over-all gains.

A very important way to sell management continuously is to insure good appearance in your physical production. Forms should have a good appearance, be modern, and functionally perfect; they will gain the approval of all concerned from management to clerical personnel.

Determine and standardize a format for your procedures, so management and others will not have to read the entire procedure to know if and how they are affected. Your favorite newspaper does not make you search for the sport news, the radio schedule, or the want ads. They have a format that you get accustomed to — and unnecessary deviations may cause a decline in their subscribers.

If you can, issue your procedures in black ink, rather than purple. Have a preprinted masthead with the company trademark on it for your procedures and policy bulletins, organization charts, and functional outlines.

Don't let people rush you continually and turn out poor jobs. Insist on time to do the job right.

Submit Reports to Management

In systems work, some of your time should be devoted to supplying management proof of your performance. These men are letting you spend many thousands of dollars to do a job for the organization, and you owe it to them to keep them fully informed as to its value. If you do not, and they cancel the

(Continued on page 24)

THE SYSTEMS AND PROCEDURES FUNCTION

A Controller's Answer to One Big Question in the Field of Management

By WAYNE C. MARKS

AFTER thinking over what I should say to you tonight, I came to the conclusion that I couldn't add very much to the discussion of what your job was. This you have talked over between yourselves; you have listened to speakers and have read much of everything printed on the subject. Therefore, I decided to try to high-spot for you some of the things about your function which, to me, are very important. My remarks will be mainly concerned with means and ways rather than the nature of the job itself.

As we all know, the systems and procedures function is a staff function. This is important to keep in mind because it means that you have no business of your own, but rather that your work is sticking your nose into someone else's business. This makes your work particularly difficult as your relations with people become of primary importance.

I believe in the systems and procedures function, so please keep this in mind too, because I may say some things which will make you ask yourself whether I do or not.

Many systems and procedures men have asked me: What is the key to a successful systems and procedures function? The answer is simple and yet, seemingly, often missed. The key is good performance—results alone count. Performance, in the sense in which it has been used here, means performance to the unit studied and not a fancy report done up in a fine binding, showing a calculation of large "savings." Performance means the people in the area which you studied were glad you came, that they feel they are better off than before your visit and would want to see you again. Selling a department head that you did a great job may give you a brief reputation, but in the long run, it must be built on acceptance at the bottom.

Many of you seem to be more concerned about to whom you report than about the results you are attaining—you also worry about your title. The systems and procedures function is still new enough so that no particular form of title has fastened on to it and need be used to guarantee identifying it. In General Foods we recently reviewed the nomenclature we were using, and while we were aware of the distinction which systems people put on the words systems, procedures and methods, and that the latter word is considered the lesser or more detailed of the three, nevertheless our own division has been named Methods and Policies, principally because the significance which attaches to these words among systems people has not carried over completely elsewhere; further the word methods already has an identification with the function in G. F. Therefore, use the title which fits your purpose and don't worry about terminology.

The controller is a very logical person to whom to report because the results of all operations and most actions and decisions are ultimately reflected in dollars in the accounts presided over by the controller. Some companies place the function elsewhere and this, too, is quite proper. The most important thing is not where, but rather that the person to whom the function reports has a sympathetic understanding of and belief in the systems and procedures function. Without this, nothing much will happen.

Unfortunately for both themselves and you, many managements still haven't accepted the systems and procedures function. Many still have reservations about what you can do. Even if top management accepts you, echelons of supervision under top management still have to be convinced. Here my suggestion is: Don't try to grow up overnight—most everything worthwhile started little and grew big.

Human relations is your most important problem. Sell yourself through performance and your ability to help supervisors do a more effective job.

The groundwork must be laid for your work by higher ups. Top management are human beings, the

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same as the office boy. While you will naturally have a different type of relationship with the general manager than with the accounts receivable clerk, you must always treat the clerk with as much courtesy and consideration as you do the general manager. Too, the clerk will probably have more to do with the success of your job.

The systems and procedures function still is one of the first eliminated in tough times. That can be changed, but only by evolutionary development based on performance and results. The greatest danger for the methods function, however, is not that it would be eliminated entirely, but that, in doing a successful job, you will be converted into a troubleshooter. Once you do a good job there will be lots of jobs looking for you, even in times of reducing employment. Many of these will be trouble spots involving operating decisions. While there is a temptation to get into this work and to help an operator solve his problems, it is a mistake to do so under the guise of performing methods work. If you get drawn into this, make sure that you become part of the operation rather than an outsider trying to make operating decisions.

Here are some do's for you to consider:

1. Do program your work.
   a. Initially, you should have a clear, complete agreement and understanding of the scope of the job with all levels of supervision. In setting out a description of the job which you intend to do, try to define your terms clearly and to avoid vague words, such as: coordination, cooperation, clarification, utilization, etc. Try to define your project in terms of specific physical things to be done. If this is not possible immediately, do so as soon after as is possible.
   b. Prepare progress reports and keep the affected supervision advised.
   c. Be able to document all your recommendations.
   d. Prepare operating manuals covering recommended procedures.
2. Do start each assignment with a review of the organization structure of whatever department, division, or section you are studying, as the effectiveness of a business depends, first of all, on organization—cleancut delegation of authority and responsibility—understood by all.
3. Do size up the men and women on the job and be aware of training needs. Nothing worthwhile happens except through people—good people—so there must be reasonably capable employees and, in particular, good supervision. Just a better system won't get results if people aren't adequate.
4. Do sell your recommendations—any system can be sabotaged unless people want it. Be sure to get the opinion of the people being studied and always put it in writing; don't avoid the fact that they disagree with you or try to ignore this disagreement; either bring them around to your way of thinking by convincing them, or if this is not done, make it clear that you do disagree and make it clearer where the responsibility of the decision to go ahead in face of this disagreement rests.
5. Do stay with an installation until everyone is trained and both you and they know it will work. There is a big difference between theory and practice.
6. Do take all the time you need to be sure you are right before submitting recommendations.
7. Do give credit—more than many times is warranted. As well as giving credit for good suggestions which you receive from other people, try also to find reasons why your suggestions do not imply criticism of them. It will lessen antagonism. Be sure that you save their faces in such a deal and that there is no feeling of omission on their part for not having recommended the right solution. You can do this by explaining how they don't have time to review whole systems and that they are not necessarily expected to do this.
8. Do organize yourself to have as little waste time as possible—at best, good, completed staff work takes time. I am always on guard when anyone says that they are able, through brief observation or testing, to come up with the best answer.
9. Do try to clarify and get a common concept understood of the word "control." Effective control must be tied to organization and people. An article, "The Essence of Control," in the November 1950 issue of The Controller, is an excellent statement of a widely misunderstood management fundamental.

A few don'ts may highlight some of the things about which you should be concerned:

1. Don't think you should run the company. Many position descriptions of systems and procedures

men state that a method man should keep abreast of all corporate policies and management decisions and actions. It's impossible! That's what management does.

2. Don't try to mastermind policies for functions belonging to other groups such as accounting, budgets, internal auditing, etc.

3. Don't try to take credit if anyone else even suggested the germ of an idea you were able to work out.

4. Don't make promises on either economies to be attained or time needed for the job which are based on too little information or on assumptions. You get no extra credit if they come out right—they boomerang if you are wrong. I would say that you should never estimate a savings or economy on a job until you are so far along that it is impossible not to attain almost everything you expect. Life is hard on prophets, and while even a bare majority of correct guesses might be a good average in some businesses, even at roulette, it would be ruinous in your job. It takes a long time to live down even one bad guess.

5. Don't underestimate the ideas of the people on the job—they know intimate details which will be helpful to you.

6. In setting up your new procedure, don't hand tailor it for people who will not be there to do the job. If the group includes people of limited ability, make provision for using them. Old John who is near retirement won't do the same job as young George, but old John is there and a place will have to be made for him. Leave room in your procedure for the people available.

7. Don't think you must recommend a different system or procedure on every job. There will be cases when there are many advantages in no change. Unless you are able to come up with significant economies or there are non-financial benefits, let the system stay as it is.

In summary, let me remind you of a few simple facts:

1. Big business is complex mainly because of size and the fact that specialized functions are necessary.

2. In a systems and procedures assignment the systems and procedures man comes up against policies inaugurated by all the specialized functions of a business. The systems and procedures man must not undertake to recommend policy changes without clearing beforehand with all affected policy making groups.

3. The accounting, statistical, budgeting or planning and internal audit functions in most companies have developed with top management the system of controls and of control reports in effect. These groups work with the line organizations on a continuing basis. The systems and procedures man receives a specific assignment and upon the completion of the assignment goes on to another assignment. Thus, the systems and procedures man does not usually have the continuity of relationship which the other financial functions have. This emphasizes the need for coordination during the progress of each assignment. Also, it points up the fallacy that management looks to the systems and procedures function to assure that their control and planning functions are adequately administered. On specific assignments, yes; across the board, no.

4. You men in systems and procedure work are, or should be a hand picked, outstanding group. Your educational level is higher, your opportunities are greater to learn more about a business than any other function. The reason I say this is because you probe more deeply into management problems than any other staff function in the business. Thus, the systems and procedures function is a marvelous training ground. I know of no function which offers both the challenge and opportunity to put to work two requisite qualities of a good systems and procedures man—the qualities of imagination and initiative.

I predict that, if the men in the systems and procedures function become more fully aware of the simple fact that "results alone count," your function will continue to evolve and play an even more important role in the continuing success of American business.

In conclusion, let me raise the question which all of you tell me is your $64 one. Where do you go from your present job? There isn't any clear pattern because your individual opportunities depend to such a large degree on your individual qualifications. You each have or should have the opportunity during the course of your assignments to meet many members of management. In each discussion, whether you realize it or not, you are being evaluated; you make an impression, for better or for worse, on all of the

(Continued on page 8)

SOME STANDARDS IN THE OFFICE

The Expanding Development and Application of Standards Throughout Industry

By L. B. HELMS, JR.

ACCORDING to definition, standards are: those rules which are established by authority, custom or general consent as a model or example. An essential in establishing a standard is testing.

Consequently, there may be many types of standards of which those pertaining to the office constitute just one category. Here, too, there can be a segregation into classifications dealing with either the standardization of the physical and other specifications of office equipment, buildings and space, or the development and use of unit values in the time evaluation and control of clerical operations or activities. We will be concerned with the latter group.

Standards were first applied in the field of manufacturing where new methods of mass producing necessitated the development of some orderly means of evaluating the work accomplished. To meet the requirements of mass production, it was necessary to secure some method for measuring the output and efficiency of both machines and personnel. Frank and Lillian Gilbreth, and Frederick W. Taylor were pioneers in the development of manufacturing standards through their individual researches into time and motion study techniques. Since then, the application of standards to manufacturing activities has expanded through practically all of industry.

More recently there arose a feeling that the application of standards to clerical work could effect economies by introducing more efficient operating methods. Hence, businesses such as mail order houses, department stores, magazine publishers, and a few miscellaneous categories using known industrial engineering techniques, applied incentive plans or other positive means of controlling their clerical expenses to the handling of orders, bills, subscriptions, policy writing, filing, and general stenographic operations. Any operations containing large volumes of highly repetitive work lent themselves to this approach, but a few disastrous attempts to apply incentives to a variety of less voluminous assignments discouraged any wider applications in the large, as well as the medium and small-sized business concerns.

Office Standards Are Mainly Administrative Tool

While there may still be divergent opinions as to the relative merits of standards as applied to office routines, the use of standards for measuring the effectiveness of office personnel and establishing a fair day's work for a fair day's pay is gaining more widespread acceptance. However, two basic principles must be established:

1. In clerical operations, standard time data will be used primarily as an administrative tool of control and only secondarily as a means of incentive payment, if it is desired, in those situations of highly repetitive operations.
2. If a form of expression is available to permit the orderly presentation of the facts expressed as time values, it would be possible to utilize those facts to organize a more efficient clerical program.

The fact that office operations are not as routine nor clearly defined as those of the production line, limits time study for incentive applications to those same highly repetitive operations which proved successful in the early days. The approach is the same as in shop operations and generally will incur similar administrative problems and expense.

Any program, however, which adapts the basic concepts of scientific management, so well defined in the manufacturing side of industry, to the clerical activities of those same businesses will reap the following benefits in varying degrees:

1. A reduction in clerical expenses as a result of the establishment of better work assignments and better planning and scheduling of the current work volumes.
2. Acquire the means for establishing a dynamic administrative control over the clerical ex-

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penses through a budgetary method. This, in turn, can be used to evaluate the effectiveness of the personnel and supervision. This positive proof of the clerical man-hour requirements may also be used to forecast future needs.

3. The detail necessary to establish the above mentioned controls should also furnish a factual picture of current procedures on a common ground, permitting comparisons, substitutions and alterations on a scientific basis.

4. Job evaluation programs and Instruction Manuals should also be available from the detailed material.

The manner in which these benefits are to be secured can be varied to fit the needs of the business involved. A recommended approach is one in which the use of operational process flow charts permits an orderly arrangement of the clerical operations to which can be added the standard time values. However, whatever form the presentation may take must provide the ability to accumulate the operational times by the position at which they are performed and/or by clerical procedure. These accumulations supply the means of dynamic control and further comparisons and processing.

Clerical Operations Can Be Divided Into Elemental Parts

The development and application of standard time values to the operations charted in the flow charts is the process that makes the recommended program possible. Clerical operations can be broken down into their elemental parts just as readily as manufacturing operations. In this state they are easily timed in the usual manner. As a matter of fact, in the absence of existing standard data, it is quite possible to assign accurate elemental unit time values by time checks with the second hand of an ordinary watch, or by estimation. These last two methods are not productive of standard time data but serve well as interim measures while the more tedious work of developing standards progresses.

The standard elemental unit time values secured by time studies should be preserved in that form, thereby making it possible to evaluate a variety of clerical actions by identifying the elemental motions and assigning them standard unit times selected from the array of standard data.

The unit time values, whether standard or otherwise, are multiplied by an average volume or frequency of occurrence during the desired accounting period to produce the total average time requirements of each operation. The accuracy of these total times is based upon the finely subdivided elemental motions which permit the law of averages to work since high values will offset low values. Care must be taken that an extremely large volume does not invalidate this assumption. These operational times are thus available for comparison by position or procedure, for control through scheduling and budgetary methods, and for revision by research.

Another method available in the development of standards is known as simulation in which the actual operating conditions are simulated and time tests made of a sample volume of the work passing through each operation to be performed. Care should be exercised in this type of unit time value to provide proper recognition for normal fatigue and differences in operator performance.

A national food company in a recent survey of comparative sales analysis procedures, compared a manual keysort procedure with a punched card method. Neither method was in use to analyse the company's sales, but the survey was conducted to determine which method provided the best cost factor.

To facilitate the comparison, each operation was flow charted to determine the necessary procedures to secure the desired sales analysis reports by both methods. Unit time values were developed and applied against the operations to make the time comparisons which were then correllated with the clerical salaries. The supervisory salaries and other expenses were also computed to arrive at a total cost per location and subsequently, the overall company cost.

Standards On Machines Are Easily Set

There was little difficulty encountered in developing unit time standards on the punched card equipment because of the uniform operating speeds of the machines. The keysort system presented a different problem because of its manual operations. Therefore, the operating conditions were simulated. Each operation was defined and a month's volume of orders were processed through them while the elapsed operating times were recorded. The recorded times for each operation were averaged and the average unit time applied against the monthly volume to determine the clerical hours.

An interesting sidelight of the comparison was the revelation that the keysorting and automatic machine sorting speeds were very similar when the slow speed sorters (250 CPM) were considered. These sorters were chosen as a means of holding equipment costs within reason.

The conclusions drawn from the comparison of methods were that while certain phases of the two methods compared favorably, the punched card system was more flexible and could more easily handle the seasonal fluctuations in monthly sales volumes.

Many administrative problems and scientific management techniques suggest themselves. For instance:

1. To what extent in other than an incentive application, is it desirable and/or advisable to subdivide the job responsibilities or to dictate an inflexible method of accomplishment resulting in an unprecedented regimentation of the clerical worker's initiative and choice of action? What reactions will be prompted in the individual workers and the general psychological level of the office force as a whole?
2. Utilization studies of office equipment are possible as well as all of the other industrial management techniques which have their basis in unit time values.
3. A companion approach to the control of clerical activities utilizes the results of research and practical experience in the design of future procedures. New procedures should be designed to take advantage of the latest developments in methods and machines to:
   a. Make a fuller use of machines toward the elimination of hand operations of all kinds.
   b. Deskill the work by transferring the skill to mechanical functions of machines wherever possible.
   c. Aim toward the development of simple by-product controls and proofs of accuracy to reduce expensive checking operations.

No one will dispute the superiority of a consistent mechanical operation over that of a hand operation. The higher speed and more constant results of the office machine permits the accomplishment of a wider variety of accounting work and greater volume with less personnel. The use of fixed program bars on accounting machines permits the swing of work from Accounts Receivable to Accounts Payable with the same group of operators unskilled in accounting, but trained in operations of the machines.

Apply More Automatic and Single Purpose Machines in the Office

A further degree of skill can be transferred to a machine by the introduction of more automatic features. A classic example is the fully automatic rotary calculating machines of today as compared with the hand-cranking variety of twenty years ago. How many unskilled employes could be taught in the matter of minutes now required, to operate one two decades ago?

The gradual evolution of these early models to our present day office equipment has been stimulated entirely by the dictates of competition among the equipment manufacturers and very little heed has been paid to the desires of the consumer. The customers have patiently adapted their accounting methods to the capacities of the "mass produced" machines. In many instances, a little extra engineering would have produced a stripped down, single purpose piece of equipment to efficiently handle a high volume operation with very little increase in delivery costs. Other applications of the same equipment would have quickly eradicated the extra cost in many cases since single purpose machines should be no more startling to the clerical field than to the production field where they are in prevalent use. The superior knowledge and experience of the salesman with his own equipment should be used to the fullest, but necessary modifications in design to fit important accounting requirements should be insisted upon to the benefit of industry in general.

Standards in the office are desirable and can be accomplished by making use of the time and motion study technique to secure accurate unit time values on elemental parts of operations that can be combined to form more complex clerical operations. With this data available, it is possible to make use of modern industrial management techniques to the end that better and more efficient clerical activities will result in lower clerical expenses and higher dollar profits to business in general.

THE SYSTEMS AND PROCEDURES FUNCTION

(Continued from page 5)

people with whom you come in contact. If the impression is favorable, then it has been my experience that someone will select you for a line position in some function.

Any standards and procedures man worth his salt, who does a good job, should have no trouble selling himself into the line where real producers are always needed. However, if you are continually concerned about your promotional opportunities, the chances are good that you are cutting down your chances for recognition. This brings me out where I started, and my starting point was this: The key to a successful standards and procedures function and the key to your successful future in industry all hinges on the simple fact that good performance and results alone count.

THAT METHODS MAN

A Delightful Interpretation of What the Word "Methods" Conveys to a Sometimes Skeptical Audience

(A paper presented at the Third Annual National Systems Meeting)

By JAMES G. HENDRICK

WHEN the census taker, your neighbor, or even your best friend asks: "What is your job?", why do you invariably say Engineer, Accountant, or Office Manager and not Methods Director? Do you avoid using your title because you know from experience how aggravating it is to see a blank look on your inquisitor's face and then, to hear the question, "What's a Methods Director?" Could it be that to describe the work of a Methods Director, you are forced to resort to synonymous and meaningless phrases like—cost reduction, increased efficiency, etc., or more likely you must stumble down a long list of functions from organization planning to forms control and sound much like the most important cog in the industrial wheel.

In American business, the desires of the individual are taken into consideration in forming the objectives of an enterprise. Since this approach has proven profitable, let's look first at the objectives of the individual about whom we are talking today, namely, the Methods man.

Individual Objectives The Method Man Wants

1. To acquire a comprehensive knowledge of the functions and operations of the entire company.
2. The opportunity to participate in the analysis and solution of major corporate problems.
3. To develop and demonstrate executive ability and ultimately
4. To move on from Methods work to a top management operating position.

Extreme diversification of work and experience attracts newcomers to the field. The opportunity to participate in major problems keeps the average Methods man interested in the field and the day-to-day opportunity for recognition and eventual advancement encourages the seasoned Methods man to complete the final years of his executive apprenticeship.

Of course, all these are purely selfish objectives and along with them, goes the pay-check desire. So, let's switch the scene now from our personal objectives and ambitions to Management's objectives and see if it is possible to reconcile the objectives of those who serve and those who pay the bills.

Some Reasons Why Management Establishes A Methods Department

1. It wants a group of staff workers sufficiently familiar with policies and inter-departmental operations to work on problems affecting numerous functions and areas of the business. This ties in nicely with our personal objective No. 1, namely, to acquire a comprehensive knowledge of the functions and operations of the entire company. Management recognizes that to have such a staff, it needs men who have gotten into problems, policies and methods from its Sales Department right on through Engineering, Manufacturing and the rest of the organization.
2. It wants this group to deal with problems that concern Vice-Presidents and General Managers—to supplement Management. No conflict here with personal objective No. 2, which says that we want the opportunity to participate in the analysis and solution of major corporate problems. Management has invested heavily in

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Mr. HENDRICK had five years of industrial relations experience before entering the methods field. During the war years he was engaged in management training and in methods work in the aircraft industry. He introduced and taught the first course in organization, systems and procedures in the Extension Division of Rutgers University in 1948. He is currently Senior Methods Analyst at the General Foods Corporation.

developing an experienced methods group and it expects to receive, as well as pay good dividends.

3. Top Executives demand "Completed Staff Work" from those who assist them. Here is your opportunity to accomplish objective No. 3; that is to develop and demonstrate executive ability. Completed staff work puts the spotlight on your ability to analyze, conclude, present, compromise and install.

4. Management needs an internal source of executive personnel to fill new and vacated key positions. Eventually, you and I want to move on from Methods work to a top management operating position. So there we are. The successful Methods man accomplishes his personal objectives one by one and they harmonize point by point with Management's objectives in having a Methods Department.

Methods Man Deals With Wide Range of Business Subjects

Now this sounds like a wonderful field to be in. If I were recruiting prospective Methods Analysts, I would probably say no more. But today, I am talking to seasoned Methods men and in a very few minutes I will be facing a barrage of questions. So, I'll have to admit that:

1. Management does not always get what it expects from its investment in a Methods Staff.

2. When the financial squeeze is on, the mortality rate of Methods Departments is high.

3. Many well qualified men and women remain out of, or quit the field because the picture that we have described here today is subject to innumerable "if's" and

4. We cannot, as yet, point to a large number of industrial leaders or even junior executives and say: "They arrived via the Methods Department."

Is this the fault of our objectives? Can we blame it all on Management and say that they just don't understand, or appreciate the mysteries of our work? Or should we say: "The objectives are practicable; management has given us the wherewithal to do a job but more often than not, we just plain fail to keep these objectives in mind when we design our methods programs."

For example: Objective No. 1 says that we must man the Methods Department with analysts, who by virtue of their education and experience, can deal with intangible problems involving policy and a wide range of business subjects. I wonder how often we disregard this objective in our selection and training programs. Do we build toward having a group of men, who understand and can intelligently apply the principals of organization, administration and control. Will they be men who can be turned loose to do a complete Management survey in any area of the organization from the Receiving Department to the Public Relations Office? Or, are we building a staff of specialists, who can tell us the weight and grade of a piece of paper at 20 paces; the very latest developments in the field of carbon paper, and the acceptable period to retain purchase order copies in the State of Wisconsin.

Last week a friend said to me, "Now I know what you Methods fellows do. There is a write-up about you in the newspaper." The clipping that he gave to me read as follows:

Methods Men Facilitate Ticket Writing for Police

> What with all the new automobiles coming out without running boards, a policeman has no place to prop up one foot while he writes out a ticket.
>
> The city's Methods men have taken measures to remedy things. They are coming out with a 'cramproof' summons form that will make up for the lack of running boards.
>
> Most of the writing the officer will have to do on this form will be done near the top of the form. Previous forms required close and painstaking writing on blanks near the bottom.
>
> The arresting officer now will have most of the form on which to rest his hand, the Director of the Methods Office announced.

If this is representative of our accomplishments and is the type of thing that the public will know us by perhaps now is the time to revise our standards for selecting Methods men; to analyze the individual deficiencies of our Methods Analysts and take definite steps towards building administrators versus form designers and office equipment specialists.

Objective No. 2, requires that we deal with major corporate problems. Well, here again this depends upon our having the type of staff I have just spoken of. Weighty problems are certainly not the business of advanced clerks, and as we know, Vice Presidents, General Managers and Controllers are quick to discover the ability of a Methods group to handle assignments that go beyond the technical aspects of machine applications and paper work routines.

(Continued on page 18)

CHARTING TECHNIQUES

An Insight into the Various Purposes to which Graphic Presentation may be Applied

(From a paper presented at the Third Annual National Systems Meeting)

BY JAMES F. FOLEY

WHILE there are many definitions of the various types of charts, they are usually divided into two general groups—Action and Non-action. As the names imply, Action charts portray movement, Non-action charts deal with data that is fixed or static. Another less commonly accepted general classification is that of Operational, that treat procedures, processes, and progress (Action), and Statistical, dealing with the interpretation of figures or statistics (Non-action).

The Action or Operational charts project the flow of goods through a sequence of processes which make up the physical system of industry. These are the "looking forward" charts and portray what "is". Few graphic presentations make such a forceful appeal to management. Good Operational charts clearly portray what is done and how it is accomplished and by whom. They reveal weaknesses in the office or in the factory which prevent workers from producing a full day's work or stop machines. They facilitate executive planning to secure the best possible results in quantity and quality and during the proper time. Difficult problems and situations are, by means of these charts, reduced to simple terms.

This presentation is restricted to the Action on Operational charts that reveal "Motion" through either space or time. They are generally classified as follows:

I. TIME – Shows the interval of time between steps and events: i.e., motion through time. Time charts are relatively simple, with time scale so established that the various conditions and operations may be shown in their time relationship to each other. The chart will show the time interval between steps or events. This relationship can be shown by means of crosses, checks or solid shading along the affected operations.

II. PROCEDURE ANALYSIS – FLOW PROCESS CHART

The Flow Process Chart is specifically defined as "a graphic representation of the sequence of all operations, transportations, inspections, and storages occurring during a process or procedure, and includes information considered desirable for analysis, such as, time required and distance moved."

For the purpose of analyzing procedural operations this chart is by far the best instrument. It clearly portrays elements of work and brings to light many previously unknown facts; consequently, it is often the means of determining a better method of operation.

A. Symbols

The make up of a Process Chart is simple as only five symbols are required to facilitate its construction:

Operation

Transportation

Storage – Temporary

Storage – Permanent

Inspection

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1. Definition of Symbol:

The foregoing terms are specifically defined by the special Committee of the American Society of Mechanical Engineers on the Standardization of Therbligs, Process Charts and Their Symbols as follows:

Operation — "An operation occurs when an object is intentionally changed in any of its physical or chemical characteristics, is assembled with or disassembled from another object, or is arranged or prepared for another operation, transportation, inspection or storage. An operation also occurs when information is given or received or when planning or calculating takes place."

Transportation — "Transportation occurs when an object is moved from one place to another except when such movements are caused by the process or by the operator at the work station during an operation or an inspection." In some instances a letter is placed within the symbol to indicate the means of transportation such as M for messenger, C for conveyor, T for tube, etc.

Storage — Many Work Simplification authorities do not distinguish between Temporary and Permanent Storage. (Their Definition: "a storage occurs when an object is kept and protected against unauthorized removal.") In factory operations this is relatively unimportant as materials eventually follow a predefined flow which originates with processing and ends when the finished product is removed from the storeroom and delivered to the customer. This routine is not quite so common in the office as many papers and records are filed temporarily and later filed permanently; consequently, the distinction is important.

1. Temporary Storage, "occurs when an object is kept for further processing, e.g., papers in sorting device, mail rack or file basket."

2. Permanent Storage, "occurs when an object is kept at a point designated as the final storage place for the object, e.g., papers in a current or transfer file."

NOTE: When a form is discarded or destroyed, this is usually indicated by making the permanent storage triangle in solid black.

Inspection — A square designates inspection. The term defined as follows: "an inspection occurs when an object is examined for identification, verified for quality or quantity or measured in any of its characteristics." Inspection includes examining a document for its completeness, accuracy, etc.

B. NEW SYMBOLS

There is another set of symbols recently inaugurated by the Special Committee of the American Society of Mechanical Engineers on the Standardization of Therbligs, Process Charts and Their Symbols.

Operation

Transportation

Storage — No distinction between temporary and permanent

Inspection

Delay

An activity outside scope of investigation

The last two symbols and their utilization are defined as follows:

1. Delay — The half-square-semicircle on its side, resembling the letter "D," indicates delay. The term is defined as: "A delay occurs to an object when conditions except those of processing do not permit or require immediate performance of the next planned action." A typical example of delay is the operator waiting for an elevator as moves from one point to another.

2. Activity Outside Scope of Investigation — The triangle with apex upward is used to designate Activity Outside the Scope of Investigation. Specifically, this is defined as: "An activity outside

the scope of the investigation is an operation, transportation, inspection, delay, storage or series of these which for any reason the investigator considers unnecessary or impractical to analyze during the current study." It is worth emphasizing that the new system of symbols is superior to the old and is gaining increasing acceptance.

C. Determining the Proper Symbol

There are occasions when it is difficult to classify definitely an action as to whether or not it is an operation, transporation, storage or an inspection. This is particularly true in the case of operations and inspections as they are at times combined. The following will enable one to decide as to the proper classification.

CLASSIFICATION	PREDOMINANT RESULT
Operation	Produces or Accomplishes
Transporation	Moves
Storage	Keeps
Inspection	Verifies
Delay	Interferes

D. Constructing the Flow Process Chart

The construction of a Flow Process Chart is very simple and is easily accomplished. Much more important however is the work that must be done to secure and to consolidate the data to be incorporated on the chart.

The compilation of the data to be used in conjunction with a Process Chart represents an important phase of the charting, as an accurate record of the steps must be made in their exact sequence. In most instances the notes recorded on the Process Analysis Work Sheet can serve as a factual description of the process. Complicated operations may require the taking of notes that are later correlated and transferred to the work sheet. Rough working sketches may in unusual cases be desirable.

The data incorporated on the Work Sheets outlining the present and proposed procedures is used as a media for preparing the Flow Process Chart. It brings together in simple and chronological order a clear and concise portrayal of all essential facts relative to the present and proposed procedures. This data coupled with the Factual Analysis provides a logical and accurate means of determining the action to be taken.

It must be admitted that there is an element of window dressing in this chart as the work sheets could, in many cases, be utilized for the same purpose as they are the original analysis documents. However, where longer processes or the use of multiple copy forms are involved, the use of the work sheets as the final chart is not practical and better results are secured by presenting the facts in proper chart form.

E. Supplementary Data Required to Complete the Chart

a. Time required for operations, transportations and inspections.

b. Distance traveled.

c. Samples of forms and records utilized.

d. Method of transporation, such as messengers, tubes, mail, etc.

e. Proper notation should be made of special handling or rerouting caused by errors or by exceptions to the regular routine.

F. Analyzing the Process Chart

Previous sections outline the mechanics of securing, compiling and charting information pertinent to a given process. Much more important is the interpretation and analysis of the information to determine "a better way" so as to "simplify and save." Existing procedures must be subjected to the closest analysis in order to determine the changes that should be made. Proposed methods must be analyzed with equal care to warrant securing best results. Consider seriously the following:

1. Phases of Work

Any kind of work divides itself into three general phases: "Make Ready," "Do" and "Clean Up." These are defined as follows:

a. "Make Ready"

This refers to all preparatory activity required prior to the performance of the key or the "Do" operation. A simple but specific example of this is a mechanical billing operation. The operator must first pull the proper ledger, sales slips and statement, if pre-stuffed, put the sales slips in proper position and drop the ledger and statement into the bill feed. At this point she is

ready to process the bill. However, all movements up to depressing the tab key are classified as "Make Ready."

b. "Do the Work"

This is the objective or the key operation of the entire activity. In our example it is represented by the actual billing operation. Some Flow Process Chart authorities recommend that the key operations be shown by solid black circles. This is a refinement only and is not considered a definite necessity.

c. "Clean Up"

The activity required after the key operation has been performed is classified as "Clean Up." When the operator has completed billing the account, it is necessary for her to remove the ledger and statement from the machine, put them to one side and then prepare to repeat these operations for the next account.

In most instances, the so called "make ready" and "clean up" steps can be changed without affecting in any way the "do" operation. Furthermore, "make ready" and "clean up" frequently require excessive time or moving around and impede the "do" operation. Because of this, it is of the utmost importance that a careful study be made of the before and after phases of the specific operation. It is well to distinguish between these three work phases before starting the overall analysis of the Flow Process Chart.

2. Question all Details

Once the foregoing distinction regarding the phases of work has been made. the questioning attitude comes into full play. Nothing should be taken for granted and every detail must be questioned. The following six questions will serve as guides in the analysis:

a. WHY? In order to determine the real reason for the existence of each Operation, Storage, Transportation and Inspection ask: Why is this being done and is it necessary? This may appear to be a ridiculous question, but it frequently uncovers operations that are unnecessary.

The question has a two fold objective of defining and justifying the purpose of the work. It is the most important of the six questions. Ask it repeatedly and carefully consider the answers received. Failure to do so can result in the loss of many possibilities for excellent improvement.

b. WHAT? After establishing proof that the work is necessary ask: What is being done and what is its purpose? This is best accomplished by first checking the chart for completeness and clarity. What makes it necessary? Consider each operation in relation to the other operations that make up the overall procedure. Can previous processes be changed to eliminate its necessity? By changing operations that precede or succeed other operations, it may be possible to combine or simplify. Determine whether work is received and removed in proper quantities. Review the forms used to see if they can be improved or subjected to further analysis.

c. WHERE? The present location need not be taken for granted. Where should the work be done? Raise the following questions to decide this:

1. Is there a duplication of work at different points?
2. Could the work be performed better and more economically at another place?
3. Would performing the work at some other point reduce the number of transports and the distances?
4. Is the work brought and removed by messenger, by another clerk or by passing from one clerk to another?
5. Does the employee have to leave the desk to secure working media or to deliver it?
6. Must he leave the desk to perform any part of his work?

7. Does the employee have to leave the department to perform the work?
8. Can desks be moved closer to facilitate the receiving and delivery of material?

d. WHEN? In dealing with the sequence of work, never overlook these questions: When is the work done? Could it be done better and more economically at another time? This will help you to answer "When should it be done?"

e. WHO? The employee is of vital importance. Therefore, we must know: Who is doing the work? Is he properly qualified and trained? This requires determining the type of employee to perform the operation. Mentally active people should be assigned to work requiring thought and judgment and not given routine assignments.

f. HOW? Check carefully the method in use in order to know how the work is performed and to determine if it can be changed or simplified to answer, "How is the best way to do it?" This is a general review question and insofar as office routines are concerned, it is predicated on the following questions pertaining to the manner in which the work is to be performed:

1. Does the employee have proper equipment, correctly arranged and functioning efficiently?
2. Is there any unnecessary writing or copying?
3. Would duplicating or photo copy equipment facilitate the work?
4. Have proper administrative controls been established?
5. Is the work checked and how frequently?
6. When would an error probably be caught if present check were eliminated?
7. Would errors cause serious results?

G. Determining the Correct Procedure

There are four specific questions that serve as an acid test in determining the necessity of any operation.

1. Can it be eliminated?
2. Can it be combined?
3. Can the sequence be changed?
4. Can it be simplified?

These are more than questions. They are actually objectives and their importance is indicated in the order listed.

In endeavoring to obtain these objectives, one should guard against over emphasizing the necessity of eliminating, combining, changing or simplifying. For example: Do not try to combine unrelated records; do not eliminate operations without carefully checking the effect of such action; do not change a sequence to solve a problem at one point if it creates serious difficulties at another place; do not simplify to the extent that controls are impaired. Operations requiring quick thinking and good judgment should not, if possible, be merged with those of a routine nature. Placing too great a degree of responsibility at one point may affect the quality of work. Be thorough in your investigation, accurate in your analysis and moderate in your recommendations.

H. Types of Flow Process Charts

Although all Flow Process charts are basically the same, they are divided into two general classifications. These are:

1. Material "presents the process in terms of the events which occur to the material." The term "material" includes forms, records and other office media.
2. Man "presents the process in terms of the activity of man only." The term "activity" includes all forms of effort, mental and physical.

As most office work involves paper handling and records, the Material Flow Process Chart offers the better means of charting office operations. The primary application for the Man Flow Process Chart is the portrayal of jobs that necessitate a man's working over a wide area rather than at a given point. They are widely used in charting material handling where groups of workers are employed.

I. The Process Chart as a Manual of Operation

An excellent but little used application for the Process Chart exists in the field of operation manuals. For the most part the average manual consists of detailed written text and the instructions are often lost in a maze of words. Some companies have used the Process Chart as a means of simplifying and abbreviating the written manual. Such an arrangement facilitates not only the new employees' understanding of their work but also greatly aids the supervisor in training employees.

III. OPERATION ANALYSIS — (Operation Process Chart and Operation and Machine Chart)

Operations are key steps in all processes as all other steps either lead to, or result from an operation. It is important that operations be subjected to careful analysis. The question "Can it be simplified?" is frequently answered only after a careful analysis of the operation in question.

The preparation of charts in conjunction with such work is important because they give the observer a practical knowledge of the details involved. The amount of detail required for the charting of operations will vary according to the nature of the process and the problems involved. As a rule, one of three basic methods is usually sufficient.

A. Operation Process Chart

This type of chart is defined as "a graphic presentation of the points at which materials are introduced into the process and of the sequence of inspections and all operations except those involved in material handling. It includes information considered desirable for analysis such as time required and location."

1. The Operation Process Chart is predicated upon:
   a. Operations in proper sequence.
   b. Materials
   c. The inspections

   While other factors may be included, these are definite requirements.

2. Constructing the Operation Process Chart

   The mechanical details of these charts are relatively simple and because of their similarity to the Flow Process chart require but little elaboration. In preparing such charts, be guided by the following:

   a. Chart only operations and inspections.
      1. The operations symbol must be supplemented with a brief statement covering the operations involved.
      2. The inspection symbol should be supplemented with a specific statement as to the purpose of the inspection.
   b. List in order of operational concurrence.
   c. Number each symbol in order within its classification, i.e., operations should be numbered 1, 2, 3, 4, as they occur; inspections are listed 1, 2, 3, 4 in order of their occurrence.
   d. Do not combine operations and inspections unless the two are actually performed simultaneously. This does occur in some operations. It may be indicated by a circle within a square or by bracketing the square and the circle.

   There are many applications for the Operation Chart in conjunction with office studies and it should be utilized frequently. Studies that deal primarily with clerical physical operations should be analyzed with this type of chart. It is not a substitute for the Process Chart but an instrument that has specific applications of its own when an analysis of clerical operations is required.

B. Operator and Machine Process Charts

The name of this chart is misleading. Although it is used frequently in conjunction with machine utilization studies, it is commonly used in analyzing any process that involves idle time.

While maximum utilization of the operator's time and motions is the ultimate objective of all motion economy, it cannot always be obtained. There are certain physical limitations that preclude the use of both hands. In conjunction with machines, there are some parts of an operation that are performed in such a way that the operator's presence is, in theory at least, not always needed. Well known examples of this in the office involve the use of Ac-

counting, Billing, Calculating and Tabulating Machines.

1. Importance of Analyzing Idle Time
   It is important that idle time be carefully analyzed in order that it may first, be reduced to a minimum, and secondly, that the remaining idle time be utilized, if possible, in some productive manner. This is accomplished by determining the points at which idle time begins, how long it lasts, and its relationship to the overall work cycle. The "Operator and Machine Process Chart" is the best instrument for this purpose. Although this chart is usually used for machine study, it has useful applications in other types of work where idle time is a factor.

2. Purpose of the Operator and Machine Chart
   The specific purpose of the Operator and Machine Chart is to show the exact relationship between operator time and machine time. Careful distinction must be made between the time the operator sets the machine in motion, machine time independent of the operator, and the time the operator and machine are working together. A common example of this is a mechanical billing operation. The action of the machine is governed by the activity of the operator; however, during each operational cycle, there are brief periods during which the operator is not employed. Furthermore, there are also some operations that are performed simultaneously by both the operator and the machine.

3. Constructing the Operator and Machine Process Chart
   In constructing such a chart, the following suggestions will prove helpful:
   a. No symbols are needed.
   b. Use plain or cross section paper.
   c. Establish a time scale to facilitate the determination of machine time and the operator's time.
   d. Set up one section for the operator and another for the machine.
   e. List operations in the order of occurrence and stagger the listing of operations in the proper column so that the relationship can be identified.
   f. Operations performed simultaneously by the operator and the machine should appear opposite each other.
   g. If the operation is involved, it may be better to itemize the machine operations and the operator's movements on separate sheets and then consolidate into one.

IV. MOTION ANALYSIS

In many respects, the human body is a series of levers, pulleys and gears. As a result of this, certain types of operations are more easily performed one way than another. A very commonplace illustration of this is walking. Man's body is so constructed that he can walk forward, backward or sideways, but because of certain physiological aspects of his makeup, it is easier and more natural for him to walk forward.

These same principles apply to man at work in the office or the factory. For example, in performing any clerical work there are certain basic principles of motion that will secure a maximum amount of work with a minimum amount of fatigue.

A. Right and Left Hand Charts
   As a rule, the motion analysis of office operations can usually be recorded on an Operator Chart, (Figure 9). This chart is frequently referred to as the Right and Left Hand Chart and the two terms are virtually synonymous. Such a chart is defined as "a synchronized graphic representation of the activities of the right and left of the operator while performing an operation and might also include the activities of other body members." These charts are used in conjunction with simple motion study and analysis. Details are recorded on a basis of visually checking the motions made by each hand rather than the utilization of a moving picture camera. Charts of this type play an important part in determining whether or not to use mechanical office equipment.

B. Simo Charts
   Complicated operations are usually recorded on Simultaneous Motion Cycle Charts, frequently called Simo Charts and the therblig terminology and symbols shown in Figure 10 are utilized in their construction. These charts are usually required for only Micromotion analysis

made with moving picture cameras and Microchronometers. Their use in the office is relatively new but indications are that they may prove valuable in the area of highly repetitive operations.

1. Constructing the Operator Process Chart

   In preparing the Operator Process Chart the following standards should be applied at all times:

   a. Chart the operation of each hand separately before making the final draft.

   b. Limit the symbols to those showing operations (Large circle) and transports (small circle).

      1. The operations symbol should indicate such motions as search, find, select, grasp, position, assemble, use, disassemble, preposition, release and hold.

      2. The transport symbol should indicate any movement of the hand from one position to another in conjunction with the performance of an operation. Bear in mind that the hand may be empty "transport empty" or may hold an object "transport loaded" during such movement.

      3. Idleness, i.e., rest or delay, on the part of either hand must be shown. There is no symbol for this and the term "idle" is simply written in the proper place on the chart. Do not confuse "idle" with "hold."

THAT METHODS MAN

(Continued from page 10)

Objectives Become Realities Via the Methods Department

Perhaps the most important item to be considered in the matter of winning Management support to the extent that the Methods Department works on top Management problems, is the question of determining the character of the department. Is it known to the organization as "The department that handles forms design, communications, the print shop, stationery supplies, office lay-out, equipment standards, etc., and just incident to all of these, has a Methods Analysis Section on the side?" Can a Methods Manager, who is bogged down with these operating details accomplish the type of objectives that we are considering today? Will a Vice-President ask the Methods Section of a General Office Department to get into a problem that is of paramount interest to the Board of Directors?

Is it not time for us to draw the line between the functions of a General Office Department and those of a Methods Department? Surveys conducted by this association show that in far too many companies, the Methods Planning function is subordinate to general office activities such as those I have mentioned.

Objectives No. 3 and 4—"Doing completed staff work for top management and moving Methods men up the ranks," needs no further discussion. In an honest to goodness Methods Department that deals effectively with current Management problems, these objectives become realities.

Now, so far, I have proposed for your consideration, a set of basic objections. In developing these, I have assumed first, that we as individuals want to go farther than Methods work in our Company and second, that our Company wants us to supplement management; to serve as a staff of in-company management consultants in matters that are beyond the area of operating personnel in either experience or available time and that, as members of the System and Procedures Association, we are interested in objectives that will elevate our profession to its proper position in industry.

I recommend these objectives to you because I believe that if you relate each one of them to the individual requirements of your company, it will be relatively easy to find the answer to such questions as—

1. What functions should the Methods group perform?
2. To whom should you report?
3. What should be the nature and scope of your work?
4. To what extent should you deal with the improvement of administrative, as well as clerical techniques?

Any conclusions that the Systems and Procedures Association might ultimately resolve on this question of objectives, will certainly be a matter of personal interest to you. What do you think they should be? Let's discuss them now so that some day you can tell the census-taker, your neighbor or best friend that you are a "Methods Man."

"GO TO THE TOP MAN"

A Labor Specialist Advises Systems Specialists

(From a paper presented at the Third Annual National Systems Meeting)

By GERALD DOYLE

I AM indeed grateful to have the pleasure to appear before you this morning and I trust I can make a contribution from within my own sphere of activity that you will find applicable to your own Systems and Procedures work. I am going to shy off from the more technical aspects of your work because I know less about it than any of you in this room although I have, of course, been subjected to and have seen acceptance gained for Systems and Procedure organization. I am confining myself to the personnel aspects of gaining acceptance of systems work, from two points of view: First, perhaps the most radical and dramatic, a situation wherein systems and procedure technique represents a new thing in a particular organization, or spells out a substantial change in the methods by which the work is to be done. Secondly, from the point of view of maintaining continued acceptance of an existing system.

Discussing the latter one first, I think it is basically sound to hold that if your system has been working and you are making the necessary follow-up changes as you progress, necessarily if you put across the practicality of the changes that you are proposing you have gone about eight steps of the ten in gaining acceptance of the change. (I might say here that for the most part you will hear me talking about "gaining acceptance of change.") I am not going to say "Sell the idea" except now. I am deliberately going to avoid saying "Personnel must be sold" because nowadays when you say, "I sold him the idea" or "You have to do a tough selling job," inferentially you are saying that the concept or the commodity that you are seeking to get someone to accept doesn't measure up to the claims that you make for it. The impression that one gets from the notion of salesmanship, rightly or wrongly, is high pressure. Rather than say "Sell the idea," or "Do a selling job" I'd like to say "convince" or "gain conviction"—an intellectual and emotional assent to a project, with the will on the part of the people who are involved to cooperate fully for the success of the program.

Now whose acceptance must we gain? A whole string of people, it occurs to me: top management, of course—top management is going to pay the bill; the staff organization, executives and line supervisors, and the folks who perform the tasks within the framework of the operation that the procedure sets forth. And you will notice there that I have been guilty myself of a kind of after-thought which I detected in one of your publications. There was an editorial in one of your quarterly issues—a very sound and convincing editorial, I thought—and yet I would quarrel mildly with its title: "Employees, Too, Have a Stake." When I read the article I had been conditioned for condescension on the part of the author—that there would be some note of, well, we must acknowledge that the employees are at least involved. Actually the burden of the editorial was that employees are vital to the success of systems and procedures worked. I wish I had written the title. I think the "too" at least would have been deleted and the word "vital" would have appeared somewhere in the title.

People Resist Changes

Now this whole string of people from top management down, offer their own problems precisely because they are people. They are people with prejudices, with their own self interests, with habits that they can develop in a matter of days, with emotions like your own, and with motivations with respect to their working activities. And whenever there is a disturbance of these prejudices, habits, motivations, emotions, and the like, there is resistance and resentment and in extreme cases, sabotage, which is a rather

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serious word for gumming the works. There is in all of us a basic, rooted opposition to change. We don't like change unless we are in a really dismal, desperate condition. Then of course, we would like change. But if things are going along smoothly and we are making our train every morning, getting through the day and managing to get our paper to read on the way home on the train, we don't like that to be changed. And in order to overcome resistance to change, logic is not enough. You may convincingly expound your rationale to the people who have to accept the change if the program is to succeed, and you might get intellectual agreement. But unless you get to the subconscious nature of the opposition to change that exists in all of us, get below the surface reasons for opposition, you will never get acceptance.

Let me suggest four case histories. In Chile, about a year ago there were riots, bloodshed, almost political crisis; and the reason: street railway fare had been increased. By how much? From 1.4 pesos to 1.6 pesos! The increase amounted to a difference of 2/5 of a cent, and yet resistance to change brought a near revolution in one of our volatile South American good neighbors. A publishing company that I heard of sent a memo to its employees, and the outcry was detectable even in this sedate publishing company. "Trying to make slaves of us!" "Showing us who is boss . . . putting our noses to the grindstone . . . How much more of this do we have to take?" The memo: "Because of many injustices and inconveniences that have been experienced by our employees in pay shortages and delays in making up the payroll, we are going to change our system of timekeeping and there will be time clocks conveniently located for you starting the first of next month." A revolution because of time clocks! Take the case of the company that has always operated with a large open office floor and decides for very sound reasons to install partitions. Reaction: "What are they trying to do, coop us up in padded cells?" "Really, you never get to see anybody when you are behind partitions like that!" "The boss wants to keep an eye on us to see if our office is empty." Or if the company removes the partitions: "It's too drafty . . . What are they trying to do, take away our privacy?" Why is there this kind of reaction to what is probably a simple change of arrangement? Because basically there is fear. So, too, with procedural changes. There is logical fear whenever a change is introduced; there is fear of dis-employment of some members of the group; there is fear of failure when the new system is installed. Someone may have been doing a bang-up job right along and yet he fears that when a new system is installed he won't be able to cope with his particular assignment in it—and it's a logical fear. There is the fear of inconvenience. Take the young lady who says, "My girl friend and I were able to go out and have a smoke five after 10 every morning. We can't do it now because of the new system; my work has to be handed in at five after 10." They logically fear that kind of change because it disturbs what was a pleasant habit, a pleasant routine.

Then is the illogical type of fear, which has no reason, just a fear of the unknown. "Something new is coming; I don't know it. Therefore, I fear it." We all carry that fear of the unknown with us. It's illogical but it's there—and it's the toughest to root out. And of course you have the pessimist: "What are they going to do to us now?" No matter what it is. "Why do we have to fill out that new form? Four copies now, instead of three." Everyone has a touch of pessimism, but it is the exaggerated pessimist I have in mind, the one who sees blackness and despair in every change that is ahead. This fear is contributed to by some of the false assumptions that management makes installing the change. First: "This is just an insignificant change, it doesn't matter." That isn't true. Size of change is not a true measure. If you install a change without having introduced it, given an explanation of it, regardless of how insignificant you may have thought it to be, you will find that the people who have to live with it, feel that it is significant.

And then there are those who make the false assumption that the benefits of this or that change are transparently clear. Everyone can see that he is going to be benefited by it.

But consider the story of a bank manager in one of our rural banks. They had some shabby old office furniture that the young ladies were using, out in the public view, and the chairs were most uncomfortable. The bank manager thought he would give them a little surprise, and over one weekend he had the last word in posture chairs installed and the old chairs taken into the storeroom. It was a surprise all right, but it was the manager who got it! Within two days, every last one of the old chairs was taken out of the storeroom and restored to its original place, and the posture chairs became junk as far as the employees were concerned. And yet the benefits of the posture chairs were clear. Here was a change that had not been properly introduced, explained and discussed. The reason again—a false assumption on the part of the bank manager. You know, Professor Benjamin M. Selekman of Harvard University has discussed it in these terms; "It is the fundamental nature of emotions to generate action. Thus fear prepares the threatened organism for flight or better defense, and anger prepares it for fight." Now basically that describes a pattern of behavior of one afflicted with dementia praecox with paranoid tendencies, and yet the Freudians tell us that we all have it,

and the employees upon whom a new system is foisted, and I mean foisted, will flee, defend—attack! There are other reasons for the fear that employees have: they find threats in changes, especially if they are substantial ones. There's a threat of a loss of job. I had the good fortune to be employed as a Railway Express clerk some years ago, and the efficiency men —well, efficiency man was a bad word in my day, always meant the loss of jobs, cut down of staffs. They also meant to us—never justifiably understood, but in the scuttle-butt—they meant this to us: Somebody's going to lose his job, we are going to get a pay cut, we are going to have to do additional work; somebody's going to lose prestige, we are going to have some of our privileges taken away; or established personal relationships, which are most important, are going to be interfered with.

Consider Personnel in Fact Finding

Now you gentlemen are all experts in fact finding and research. From what I've read and what I've seen, in order to install a system or to change a system, you must do some fact finding, conduct a survey; and as a result of the facts that you find reach conclusions as to the best methods to adopt. In terms of the personnel aspects, let me make these suggestions to you for your fact finding. No doubt you've thought of them before, but let's say that I'm just refreshing you on some of them. Look for any inconvenience that is going to be occasioned to employees affected. There's apt to be an initial increase in error, not one-half so disturbing to you, as it will be to the person who commits the error, because the procedure is new. There's apt to be an increase of pressure on some members of the staff. Watch for that! Because resentment grows from increased pressure when it is recognized that somebody else has less to do. Third, in the event you are establishing a change in one unit of a company, have a good look at the other company units that may be affected. Otherwise, you will develop resentment that can pull the rug out from under any success you might have in the control unit. Watch out for such things as a lowering of status of individuals. A change of title might not mean another dollar in the pay envelope—but if you change the title so that there is some impairment of the individual's stature among his fellows, you are going to have trouble. Or, believe it or not, where an assignment is reduced, where someone is given the feeling of less importance on his job, or where employee A now shares some of his responsibility with employee B, with consequent loss of opportunity for recognition. Note, too, that there undoubtedly will be resentment when, as it must, the new system requires closer supervision or inspection of someone's work. Make it clear that that will happen and the reason for it. Next, consider those vital office politics situations where one employee gets a new assignment that looks like a promotion and the "slighted" employees start to do a job on him.

Obtain Group Approval

Generally speaking, I've been attempting to talk to you in terms of winning group approval, because if the group approves, the recalcitrants will usually go along. This means that there must be careful timing of the introduction of any change in terms of seasonal activity, in terms of what day of the week, yes, hour of the day, the new change is announced; and to the extent that you get group participation, you get willingness to give it a try, and you will find that the conservatives, the resistors of change, will be inclined to go along with the group. No matter how reactionary or stand-offish they are, they want group approval. My suggestion: Give the group as much leeway as you can in devising the methods that you are going to use. True you're the boss, you control it, you pattern the thing. But give them as much leeway as you can within the flexibility of your program. Recognize too, that the supervisor exercises the control of the group. You cannot cut down on his leadership. Point up the ultimate goal of what you are proposing and show that it ties in with what has always been the group's aim. And then in some instances, it is a good idea—not in all, but in some—it is a good idea to negate in advance the unspoken worries that you know the people have. Where you can give the assurance that this is not going to affect anybody's job, do so. And above all, encourage questions; because out of the questions you can find out the defects of your own presentation.

In launching the new system, you are confronted with this problem in practically every instance: how much fanfare should we give to it? Naturally, you can't break a bottle of champagne on an IBM machine, let's say. But, you can determine just how many frills you are going to attach to a new system that you are installing. Announce it, plug it in the company paper—but have somebody good do it, please.

Install New Procedure Cautiously

Now, should the launching of the new system be sweeping or gradual? I think the words answer the question themselves. Wherever possible, insinuate the change. Don't attempt to draw out all the blood and replace all the blood as doctors do with Rh babies.

Again there is always the problem of possible belated resistance. "We'll go along with this joker for a

little while, but we'll get back to the old way. You know how they always do here; they are always coming up with something new, and they pretty soon forget about it. Come on, let's play along with them for a while. Go through the motions." That has to be watched. And if you're content to accept that attitude, then you should never in my judgment have introduced the system in the first place.

How do you gain the acceptance of top management? I suppose I should depart from my original professed intention and talk about "selling" here. It seems to me that the resistance of enlightened top management—those fellows who put together and control the amorphous something that is called company policy—that there can be resistance from the men who are charged with the duty of performing that function seems incredible. How can top management, which is interested in the financial success and progress of the Company, close its eye and turn a deaf ear to orderliness, to efficiency, to reduced waste, and reduced waste motion? It's an essential contradiction, it seems to me, for top management to say, "We have been doing all right. Let's go along the way we have been going. There's nothing serious. If we make more money, the Government will take it anyway." An attitude like that is a tough one to encounter because there again you have an emotional psychological block that must be removed. You can't do it by logic chopping. It seems to me that one of the selling (and I am using the word deliberately now) angles with the smaller companies should be a translation of what the large companies are doing into middle size and smaller terms that top management of those respective companies can apply to themselves. The roots of top management resistance in my opinion, are inertia, subconscious resistance just like the employee at the line level, and the sense of its own omnipotence. What are your rebuttal tools? How do you put your program across? Because frankly you have to put it across at this level. You have these kinds of tools—rhetorical—that ancient principle of rhetoric that you're all familiar with: To win a debate in which the proposition is argument for a change, you've got to establish that the present system is inadequate and that the substitute that you offer is superior. Another rebuttal tool is in the psychological realm: diplomacy. Although diplomacy has had a very bad press in recent years, diplomacy with a small "d" is one of the characteristics of your own that you must draw on. You've got to avoid the impression of stepping on toes or cutting a wide swath through the company. Top management likes to think that it's running its own business. I think the most persuasive tool is arithmetical. You must show in numbers that what you propose will mean more profit and less cost.

Government Controls and Manpower Shortage

You can use this argument too, and I'll state it as the conclusion of what I've got to say this morning. Top management, whether it recognizes it or not, and you and I are right now experiencing the beginnings of a revolution. Let me point out to you that nowhere in the Defense Production Act of 1950 do we find provision for "emergency" organizations or "war" organizations. There is a frightening kind of permanency in the Defense Production Act of 1950, frightening enough to me to indicate that we have been since it became law in a minor economic revolution. We're going to have more Government in your business and my business, not less. We're going to persist for a generation in doing business like this. The less optimistic say your lifetime and your children's lifetime and perhaps beyond. Now how does that work in as an argument for acceptance by top management of systems and procedures work. There is going to be a manpower shortage, the like of which has never been experienced in this country, even in the days of 1942 through 1945. What we are experiencing now with only a few million unemployed is an abundance compared to what we confront in the future. I read in Monday's paper the release of a Government agency, which said that for every stenographic graduate from business school in this country, there are now nine calls for her. Every stenographer has the refusal of nine jobs, and it's bound to get worse as enlargement of the draft and stepped-up defense production make greater demands on our manpower. We thought we hit the bottom of the barrel in 1944. Remember the joke, if you're warm, you're hired? It's going to be worse than that.

Now, in scraping the bottom of the barrel in the future, methods will have to be drastically simplified. They will have to be almost foolproof, because you're going to have less and less choice in the aptitudes of the applicants in your company. The function then of the systems and procedure profession will be accentuated as the years go on. The success of your work will be vitally important for vital National reasons. To the extent that the systems and procedures profession succeeds, the defense production and ultimately the country will succeed.

ACCOUNTS PAYABLE SYSTEMS

An Outline of the Accounts Payable Procedures of a Large Pharmaceutical Company

(From a paper presented at the Third Annual National Systems Meeting)

By BERNARD H. SEMLER

FOR purposes of discussion, Accounts Payable Systems is defined to cover the procedures followed in processing vendors' invoices from their receipt until final payment and recording in the proper account classification. There are certain basic principles which are essential to any good system. These principles may be placed in any number of classifications depending upon the scope of each classification. The following are suggested basic principles of a good Accounts Payable System.

1. The system must provide for adequate internal check and control. In so far as it relates to accounts payable systems, internal check and control implies—
   a. Division of responsibility to insure accuracy and safeguard funds.
   b. Clear definition of approval authorizations.
   c. Interrelation to a good purchasing procedure.
2. The system must provide for a steady flow of documents through the various operations with assurance of speed and accuracy.
3. The system must be flexible to take care of rush and unusual items as well as peak periods.
4. The system must provide for ready reference to supporting documents.

The following is an outline of the procedure which we follow in handling this type of transaction.

I. Invoices received by Purchasing Department
   A. Stamped with block stamp for further processing.
   B. Coded from purchase order previously coded by Accounting Department.
   C. Approved for price, terms.
   D. Invoices covering raw materials forwarded to Raw Material Inventory Section for matching with receiving reports and posting to inventory record; then to Accounts Payable Section. Other invoices sent directly to Accounts Payable Section.

II. Receiving reports (1 copy) received by Raw Material Inventory Section
   A. Receiving reports covering raw materials matched with and attached to vendors' invoices and forwarded to Accounts Payable Section.
   B. Other receiving reports forwarded directly to Accounts Payable Section.

III. Accounts Payable Section processes invoices as follows:
   A. Checks extensions and footings.
   B. Calculates and notes amount of discount.
   C. Matches receiving reports with invoices.
   D. Checks approvals.
   E. Assigns voucher number to each invoice.
   F. Writes voucher check (Exhibit I) on regular typewriter with pin-point type.
      1. All invoices, except for 12 vendors with whom volume is exceptionally large, are paid immediately.

IV. Original voucher check and duplicate with supporting documents attached forwarded to Audit Section for audit, countersignature, and cancellation of documents.
   A. Original check forwarded for machine signature and mailing.
   B. Duplicate, with documents attached, returned to Accounts Payable Section.

V. Vouchers are taped for gross amount and balanced against tape by major account classification made from invoices.

VI. Triplicate voucher copies to General Accounting for taping of gross, (individual items on remittance advice) discount, and net and recording of totals in cash record.
   A. Triplicate copies are filed in post binder as check register.

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VII. Duplicate copies of vouchers with documents attached posted directly to general ledger accounts on Burroughs accounting machine.

A. Charges to raw material and burden accounts posted in daily totals only. (Detail posting for Cost Accounting posted from duplicate copies of invoices.)

B. Charges to expense accounts posted in dollars only with adjustment reflected in penny elimination account.

C. Posting of each run made separately for each major account classification with machine total of each major classification agreed with control tape. (See Par. V.)

VIII. Duplicate copies of vouchers with supporting documents attached filed alphabetically.

IX. General ledger accounts payable control reconciled at end of month with total of daily runs applicable to current month processed between first of following month and closing date.

Summary of Significant Features

A. Except for 12 vendors paid monthly, all invoices are paid promptly.

B. Voucher checks are written on regular typewriter with pin-point type.

C. Triplicate copies of voucher checks become check register.

D. Adding machine tape totals are obtained for each major ledger classification and the aggregate total reconciled with independent total of checks issued as a pre-control over posting.

E. Vouchers are posted directly to general ledger accounts on accounting machine without intermediate record.

1. Raw material purchases are posted in daily totals only.
2. Remaining postings are by individual voucher with vendor name or explanation shown for ready analysis.
3. Machine totals by major ledger classification are accumulated and checked against pre-control.

SECURING CONTINUOUS MANAGEMENT SUPPORT

(Continued from page 2)

program, you've let down your organization as a whole, your own staff, and yourself.

A series of periodic reports should be sent to your immediate superior, with copies to other interested members of management. Such reports can be on the number of forms originated, obsoleted, or revised. It can list the forms by department or division so that the appropriate officer will know how the forms picture has changed within his own segment of the organization. If you have a program going on consolidation of forms, results of such a program will be indicated in your forms report.

Do a measuring job before you start work on a systems survey project. How many people? How many dollars now? How many forms or how many copies? How many machines? How much time? What sort of backlog?

On anything you think you can improve, get an accurate measurement. This will be the "before," and after you've installed your new system, you will want to measure again, and then, in your report on the project, the "before" and "after" will present the gains made in very convincing fashion.

Each project should be so handled and reported upon. And a word of caution here — if your report shows important gains, be liberal with your "pats on the back" for those in other divisions who contributed to the survey and installation. See that the top man in this other division gets a copy of your report. It will help to put you and your program in solid with him and with his people.

Every project, every assignment completed should have a report on it to management. Don't hide your light under a bushel; on the other hand, don't overdo it. These reports should be as graphic as you can make them. Use pictures, graphs, or bar charts — keep long copy at a minimum. Keep the graphs extremely simple.

But periodic or completion-of-project-reports aren't the only way you can insure continuous management support. Circulate personally among all levels of management and supervision and point out gains they have enjoyed, or will enjoy. If your program is right, all members of the organization will benefit. Point out those benefits continuously.

So we might summarize this discussion by saying that the very foundation for securing continuous management support lies in a well-planned, well-conceived original program. If it is so conceived, and operated intelligently, then results must follow. In other words, you sell on a promise of performance, and to keep your program sold, you've got to actually perform.

Performance indicates results or gains. You must interpret those gains in terms of dollars, better service, or more adequate controls, to management.

Your contacts with management can be personal, on the basis of reports, and in memorandums.

Handle your program that way, and you will always enjoy continuous management support.

A WELL BALANCED WORK PLAN YIELDS STANDARD WORK PERFORMANCE

A Precise Concept for Standardizing Human Work and Effort

(A paper presented at the Third Annual National Systems Meeting)

By ARTHUR R. MOSLER, JR.

MANAGEMENT is forever confronted with the dual problem of assuring the feasibility and desirability of plans or programs before they are approved and of assuring that they are effectively carried out after they are approved. Since programs involve objectives, actions, resources, and time, standards which permit such factors to be clearly and consistently related will be helpful to management in connection with both planning and performance control.

Standards can be qualitative in character, for example, performance specifications, tolerances for inspection purposes, etc. Such standards are beyond the scope of this discussion which is addressed primarily to quantitative standards bearing on the relationship between work and resources. Moreover, major emphasis is given to the application of unit time standards to do work.

Under the circumstances, it is well to discuss first, the generic character of the planning process and second, the problem of performance control,—showing in each case the essential role that quantitative standards play and their significance to all levels of management.

The Planning Process

A plan or "program" is comprised of three basic elements:

1. Objectives
2. Work—to achieve the objectives
3. Resources—to do the work.

1. An enterprise is established to fill a purpose, i.e. to accomplish certain objectives. In the absence of the enterprise, it is presumed that the objectives would not be satisfied. Conversely, if the objectives cease to exist, the enterprise is no longer justified; to remain "in business," it must set new objectives for itself.
2. Given a set of objectives, there are various kinds, amounts and combinations of action that will effect their attainment. Management is faced with a choice in deciding WHAT work shall be DONE. The work decided upon is only one possible translation of the objective into action. There are as many ways to build a house as there are routes to Chicago.
3. Given a set of objectives and a decision as to what work is to be done, resources must be available to do the work. Resources include men, machines, money and other things that money will buy. Again management has a choice in selecting what kinds of resources shall be used and how much of each kind. In any event, its decision is only one possible translation of the work into resources. It should be noted that whereas work is once removed from objectives, resources are twice removed.

Balancing Basic Elements Is of the Utmost Importance

Essential to the planning operation is the balancing of the three basic elements—objectives, work and resources. It is self-evident that the three elements must be in balance since they are mutually equivalent translations of each other.

The planning process starts with the establishment

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of planning assumptions, usually with respect to objectives and expressed in terms of quantity, quality and time. Although the planning process is continuous and never ending, its first phase is concluded when management, having determined that a particular plan is both feasible and desirable, approves the plan. This "approval" may not necessarily be the signal to carry out the plan; it may very well be merely the authorization to develop more detailed or short-term plans within the framework of an approved long-term plan expressed in broader terms.

Both with respect to the original planning assumption and the approval of a balanced program, the controlling factor may be any one of three elements —objectives, work or resources. For example, an annual sales target would represent a "fix" on objectives. Outside limits of plant capacity which control the maximum amount of work that can feasibly be done during the period would apply to the second element.

In the Government, the planning assumption is usually related primarily to the objectives and is the decision of operating agency management in the Executive Branch. On the other hand, the controlling factor on program approval is in terms of availability of funds, a decision of Congress, the Legislative Branch. Hence, based on Congressional appropriations, it is usually necessary for the Government agency to rework its proposed plan.

Because available funds may limit the amount of work that can feasibly be done, it may be necessary for management to modify its objectives. This illustrates that even though the plan was "balanced" at the time it was submitted to a higher or different level of management—in the above case, the Congress —a new plan has to be developed because of a change in the planning assumption or because the planning assumption is no longer consistent with or feasible in the light of a decision with respect to one of the basic elements.

Other Limiting Factors Must Be Considered

Factors may exist which are known to condition or otherwise limit the translation of objectives into work and the secondary translation of work into resources. For example, time limits to do the job, location where it is to be done, an idea as to maximum availability of funds, lack of experienced labor or special equipment. We will not think of going to the West Coast with only ten dollars in hand, of driving to Chicago in two hours or if our car is in bad condition.

Having developed a long-term plan, say for a year, a reverse process is pursued in developing short-term plans, e.g. quarterly, monthly. In developing the annual plan, objectives were translated into work and work into resources; then, based on limitations as to the availability of resources, the necessary modifications were made regarding work and objectives. In other words, the first phase assumed a pattern similar to that of alternating current.

In developing a short-term plan, we make an assumption as to how much of the total work is to be expected in the short-term time period and translate this into the resources required to do the work. We know that our short-term plan must be consistent with the long-term plan if the same translation factors are used. These translation factors are the so-called "standards" that permit us to determine that work and resources are mutual equivalents. This is the key role that standards play in the planning process. In addition, because they make it possible more effectively to evaluate performance, management is able to inject additional realism into future planning, as well as continuously improve performance.

Performance Control

The problem of performance control is one of assuring that operations are being carried out in accordance with an approved plan. This involves two basic questions:

1. Irrespective of work done or of resources used, how do results compare with objectives?
2. Irrespective of results, how efficiently were resources used in the light of actual work done?

The first question involves quantity, quality and time. Moreover, it is a basic question which management must always be able to answer. Since no enterprise is justified except by virtue of its objectives, so the "pay-off" is in results.

The second question to which this discussion is primarily addressed, involves evaluation. Its purpose is to identify areas requiring management action, to determine generic causes of significant inefficiencies and to show WHO should do WHAT about them and HOW, WHEN, and WHERE.

The problem of comparing work done to work planned is difficult in view of the different kinds and amount of work involved as well as of steps, operations, processes, methods, raw materials, finished products, types of workers, working conditions, and the like.

At the same time, it is not enough merely to compare resources actually used to those authorized since this will conceal significant inefficiencies. It is at this

point that standards become particularly helpful in answering the key question: "How much resources would have been used if actual work had been done at standard?"

Standards As Performance Goals

Standards as used here, represent ultimate performance goals, based on the best way to do work. They are a decision of management as to the rate at which resources are to be utilized in order to do a given amount of work. These standards may not be feasible of attainment within the time period involved. They make it possible, however, to split variations due to performance which are within the control of a given level of management from variations due to work load and other factors which are generally beyond its control.

Performance Is Evaluated

There are four key man-hour figures essential to the measurement and evaluation of performance:

	KEY FIGURES	*INDEX*	
For what we expected to do—			
We provided (or budgeted)	1100 Hours	1.10	Expected Labor Utilization
We *would* use (at standard)	1000	.80	Work Load
For what we did—			
We *would* have used (at standard)	800	1.15	Actual Labor Utilization
We *actually* used	920		

The difference between the first two figures represents the amount that we plan to over run; the difference between the last two figures, the amount that we actually over-ran standard. This is shown by the Expected and Actual Labor Utilization Indexes of 1.10 and 1.15 respectively.

The difference between the second and third figures represent the variance at standard due to actual rather than planned work load. In the example, the Work Load Index is .80

Because a standard is an ultimate goal, management may have sound reason to expect to run over during a given period—say by 10%. Therefore, planning must take this into account.

This is what we meant by "injecting additional realism into planning." Sufficient resources must be provided to do work at the level of efficiency which can reasonably be expected during the future period involved. Otherwise we may find that we have spent all our money, not completed our work and hence failed to accomplish the objectives at which the work was directed.

The first figure, therefore, represents the resources which management believes reasonable to provide to do the amount of work expected in the time period involved. In a sense, it is an "adjusted" standard. In the example, the Actual Labor Utilization Index of 1.15 is suspect since the Expected Labor Utilization Index was only 1.10.

Actual vs Planned Pay Rates

We are now ready to bring costs into the picture. Previous to this, it served no purpose. The effect of actual vs. planned pay rates might distort the Labor Utilization and Work Load Indexes, were money introduced prematurely and in an incorrect manner. Moreover, in the Government no competitive pricing problem exists. Even though such a problem obtains in private industry and even though it is therefore necessary to develop costs by classes of products, —it must be recognized that pay rates are generally beyond the control of the management level responsible for production. Finally, competitive pricing is not normally a relevant consideration in connection with clerical operations.

Thus, the four key figures become seven in number:

	KEY FIGURES	*INDEX*	
For what we expected to do—			
We provided (or budgeted)	1100 Hours	1.10	Expected Labor Utilization
We *would* use (at standard)	1000	.80	Work Load
For what we did—			
We *would* have used (at standard)	800	1.15	Actual Labor Utilization
We *actually* used	920		
Costs—			
At expected pay rates			
We would have spent	$1840		
We actually spent	2153	1.17	Pay Rate
We budgeted	2200	.98	Overall

The difference between the fifth and sixth figures represent the cost variance due to actual pay rates rather than planned pay rates. This is shown by the Pay Rate Index of 1.17.

The difference between the sixth and seventh figures represents the combined effect of all preceding variances; in the example, .98.

Variations Noted in Types of Hours

It is interesting to note that there are three kinds of hours:

1. PROCESSING HOURS where work load determines the hours needed.
2. OTHER HOURS WORKED (overhead, etc.) where hours available determine the amount of work done.

3. OTHER HOURS PAID FOR such as leave, holidays, overtime (half-hours only) which are not related to work.

It is to be noted that processing hours are of two types:

1. Variable hours which are related to work volume. Here the problem is to identify and measure variable factors.
2. Constant hours related to time and not to work volume. Here the problem is to identify time periods and measure constant factors. Examples are the preparation of a set of ledger sheets at the beginning of each quarter or the closing of a set of books at the end of each month. Each requires a constant amount of man-hours and is not related to variations in work volume, such as the number of entries made during the period of time involved.

How to Apply Principles to Procedure

The principles just discussed are not new or original. The industrial cost accounts and industrial engineers apply them in their every day work in our factories.

However, they have not generally been applied to large-scale paper processing operations and therefore we have attempted to set them forth in an appropriate perspective.

Recently, in a pilot Government installation, it was found that a control system based on these principles would involve but five basic forms, exclusive of the usual time and work-load tally records:

FORM	FREQUENCY
1. Standard Data Sheets	(as required)
2. Work Plan	(Annual & Quarterly)
3. Operation Analysis	(Monthly)
4. Program Report	(Monthly)
5. Division Performance Report	(Monthly)

As a result of the installation, it is expected that numerous other record and report forms will be abandoned, clerical time saved and management provided with better tools to do its job.

In closing, it is pointed out that any system based on these principles will forcibly bring to the attention of the proper level of management, all and only those matters with which it should be concerned and point generally as to the type of action called for.

At the same time, by being so closely linked with the planning process, the system will permit management to follow the "principle of exception." Having approved meaningful plans, management no longer needs to know everything about everything; it needs to know mainly about variations from plans and from the standards on which the plans are firmly based.

* * *

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